



# Big Sandy Rural Electric Cooperative Corporation

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March 31, 2005

**Beth O'Donnell**  
Executive Director  
Kentucky Public Service Commission  
P O Box 615  
Frankfort KY 40602

Dear Ms O'Donnell:

Please find the enclosed response by Big Sandy Rural Electric Cooperative Corporation to the data request in Case No. 2005-00090.

Thank you,

A handwritten signature in cursive script that reads "David Estep".

**David Estep**  
Manager of Finance & Administration

DE/jh

Enclosure

ENCLOSURE  
MAR 31 2005  
PUBLIC SERVICE  
COMMISSION

10/23/05  
10/23/05

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**AN ASSESSMENT OF )**  
**KENTUCKY'S ELECTRIC ) ADMINISTRATIVE CASE NO. 2005-00090**  
**GENERATION, TRANSMISSION )**  
**AND DISTRIBUTION NEEDS )**

**BIG SANDY RURAL ELECTRIC COOPERATIVE CORPORATION**

**PSC ADMINISTRATIVE CASE 2005-00090**

**PUBLIC SERVICE COMMISSION'S REQUEST DATED 03/10/05**

The following information is being submitted by Big Sandy Rural Electric Cooperative Corporation in response to the information requests contained in Appendix B to the Order of the Kentucky Public Service Commission in this case dated March 10, 2005.

LIST OF WITNESSES

PSC CASE NO. 2005-00090

| ITEM | WITNESS                                 |
|------|---|
| 1    | DAVID ESTEPP, MANAGER OF FINANCE & ADM. |
| 2    | DAVID ESTEPP                            |
| 5    | JIM LAMB, EKPC                          |
| 17   | JIM LAMB, EKPC                          |
| 18   | JEFF PRATER, OPERATIONS SUPERINTENDENT  |
| 19   | JEFF PRATER                             |
| 26   | JEFF PRATER                             |
| 27   | JEFF PRATER                             |
| 28   | JEFF PRATER                             |
| 29   | JEFF PRATER                             |
| 30   | JEFF PRATER                             |
| 31   | DAVID ESTEPP                            |
| 32   | JEFF PRATER                             |
| 33   | JEFF PRATER                             |

NON-APPLICABLE ITEMS

Request numbers 3, 4, 6 through 16, 21 through 25 are not applicable to Big Sandy RECC.

**BIG SANDY RURAL ELECTRIC COOPERATIVE CORPORATION**  
**PSC ADMINISTRATIVE CASE NO. 2005-00090**  
**RESPONSES TO INITIAL DATA REQUESTS**

**Request 1.** Provide a summary description of your utility's resource planning process. This should include a discussion of generation, transmission, demand-side, and distribution resource planning.

**Response 1.** Big Sandy RECC is currently in the process of developing a new 4-year work plan. This work plan will re-evaluate our power requirements for our future load growth. This will include, but not be limited to, modeling future load growth, assessing distribution feeder needs, new substation needs, and a general assessment of our facilities. Big Sandy RECC will create a plan for improvements and additional construction based on the outcome of this study. In addition to a work plan, Big Sandy RECC partners with East Kentucky Power in developing a long range Power Requirements Study. Other resource planning processes include a 10-year financial forecast, in conjunction with RUS and annual operating & capital budgets.

**Request 2.** Are new technologies for improving reliability, efficiency and safety investigated and considered for implementation in your power generation, transmission and distribution system?

**Response 2.** Big Sandy RECC has begun implementation of an Automatic Two-way Communication System, commonly called TWACS. This technology will allow Big Sandy RECC the ability to perform a wide assortment of data retrieval for our

members, and enhance many facets of our facilities. These include, but are not limited to the following:

- a. Ability to retrieve meter readings on a daily basis for each member, allowing for daily KWH usage graphs to be created for members who wish to monitor their energy usage more closely.
- b. Ability to obtain hourly KWH usage data for Time-of-Use metering if the future energy market offers significant savings to our members by utilizing such a rate structure.
- c. Ability to do an “On Demand KWH Read” of any members meter if they desire, or if such information can resolve any issue.
- d. Ability to perform a “Voltage Check” at the member’s meter to aid in diagnosing problems that a member may have with their own equipment.
- e. Ability to perform some routine tasks via TWACS modules that now require a serviceman to make a trip to the site (e.g. verification of meter reading, reading a meter to allow new members to take possession of an account).
- f. Ability to retrieve engineering data. Each TWACS module can provide KW demand information. This data would provide transformer load studies and distribution feeder studies.
- g. Ability to perform remote disconnect/reconnects for members who pose hazardous or risky situations.
- h. Ability to control prepay systems now being tested for members who are high risk of non-payment.
- i. Ability to operate Load Control devices for demand reduction.
- j. Ability to retrieve Water and Gas meter readings in joint cooperation with these utilities
- k. Ability to manage, track, monitor outage situations.

Scheduled completion date for our AMR program is 2007.

Big Sandy RECC also plans to evaluate an automated mapping software system in the calendar year of 2005. This software will be evaluated on the basis of cost savings

gained by eliminating paperwork and speeding processing time of job orders and mapping updates.

**Request 5.** Provide actual and weather-normalized annual coincident peak demands for calendar years 2000 through 2004 disaggregated into (a) native load demand, firm and non-firm; and (b) off-system demand, firm and non-firm.

**Response 5.**

| <p align="center"><b>Big Sandy RECC<br/>Actual and Weather-Normalized<br/>Annual Coincident Peak Demands</b></p> |                         |   |   |   |                                     |
|--|-------------------------|---|---|---|-------------------------------------|
| Annual Peak  | Actual Peak Demand (MW) | Weather Response Function (MW / Degree) | Actual Peak Day Temperature (Degrees F) | Normal Peak Day Temperature (Degrees F) | Weather Normalized Peak Demand (MW) |
| January-00   | 67                      | -0.67                                   | 7                                       | 1                                       | 71                                  |
| January-01   | 67                      | -0.67                                   | 9                                       | 1                                       | 72                                  |
| January-02   | 66                      | -0.67                                   | 15                                      | 1                                       | 75                                  |
| January-03   | 69                      | -0.67                                   | 9                                       | 1                                       | 74                                  |
| December-04  | 74                      | -0.67                                   | 3                                       | 1                                       | 75                                  |
| <p align="center"><i>Based on Jackson KY Weather Station Data<br/>and Big Sandy RECC Hourly Load Data</i></p>    |                         |   |   |   |                                     |

**Request 17.** Provide a summary description of your utility’s existing demand-side management (“DSM”) programs, which includes:

- a. Annual DSM budget.
- b. Demand and energy impacts.
- b. The currently scheduled termination dates for the programs.

**Response 17.**

The response below is from EKPC’s response to this question and is applicable to Big Sandy RECC.

*Nonresidential DSM*

EKPC and its member systems actively promote interruptible rate pricing as a DSM tool. There currently exists 124 MW of interruptible demand on the EK system, the bulk of which is a single customer served by Owen Electric (Gallatin Steel).

*Residential DSM*

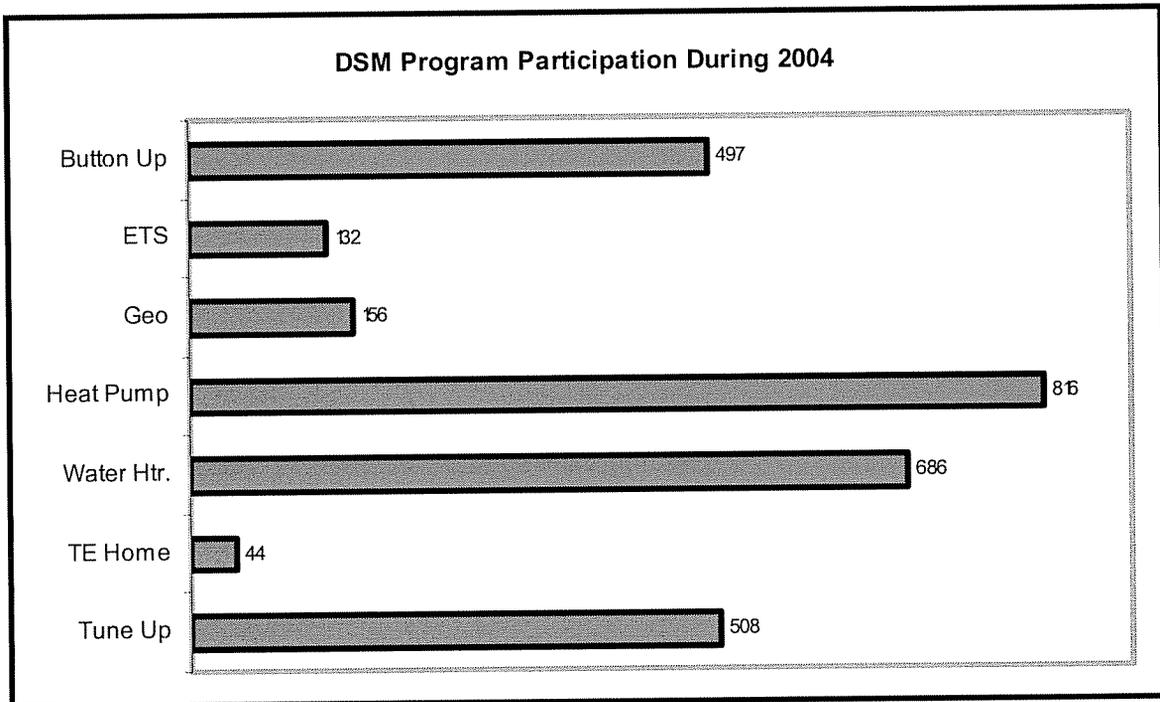
East Kentucky Power Cooperative (EKPC) and its 16 members work together to design residential DSM programs. Program implementation is done by the distribution cooperative, with support by EKPC. Residential DSM programs almost always involve HVAC or water heating efficiency measures.

DSM programs currently in place are as follows:

1. Air-Source Heat Pump Incentive
2. Button Up Weatherization
3. Electric Thermal Storage (ETS)
4. Electric Water Heater Incentive
5. Geothermal Heating and Cooling

6. Touchstone Energy Home<sup>1</sup>
7. Tune Up – HVAC Maintenance

In 2004, the programs had the following number of participants.



*Button Up Weatherization Program*

The program requires the installation of insulation materials or the use of other weatherization techniques to reduce heat loss in the home. Any retail member living in a stick-built or manufactured home that is at least two years old and which uses electric as the primary source of heat is eligible.

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<sup>1</sup> This program includes the Touchstone Energy Manufactured Home in addition to homes constructed on site.

### *Air-Source Heat Pump Incentive*

This program promotes efficient air-source heat pumps. The primary targets for this program are retail members building new homes in areas where natural gas heat is an option. An important secondary target is the HVAC retrofit market, offering incentives to retail members to replace electric furnaces and gas or propane heat with high-efficiency electric heat pumps.

### *Electric Thermal Storage*

This program involves heating bricks during off-peak hours, thus storing the heat. During on-peak times, the heat is dispersed into the home. A time-of-day rate for ETS energy encourages retail members to use heating energy off-peak rather than on-peak. While this program is not a conservation program, it nonetheless helps to clip winter peak demand.

### *Electric Water Heater Incentive*

The electric water heater incentive is designed to encourage residential customers engaged in new construction to choose a high-efficiency electric water heater over other available options. It is also designed to encourage conversion from a fossil-fuel water heater to a high-efficiency electric water heater.

### *Geothermal Heating and Cooling*

Traditional air-source heat pumps remove heat from the air. Geothermal heating is a heat pump that removes heat from the ground. It is a very efficient heating and cooling appliance. EKPC and its member systems pioneered the development and implementation of geothermal heating and cooling during the eighties and nineties.

### *Touchstone Energy Home*

This program provides incentives and support relating to new home construction. A home built to Touchstone Energy specifications will be at least as efficient as an Energy Star home.

Tune Up HVAC Maintenance

This program includes cleaning indoor and outdoor heat-exchanger coils, changing filters, measuring the temperature differential across the indoor coil to determine proper compressor operation, checking the thermostat to verify operation and proper staging, measuring air flows to ensure proper conditioned air distribution, and sealing ductwork either through traditional mastic sealers or the AeroSeal dust sealing system.

**Demand / Energy Impacts And Annual Budget**

The table below reports program impacts. Note that this data is per installation.

|  | Energy Impact<br>(kWh) | Impact On Winter<br>Peak<br>(kW) | Impact On Summer<br>Peak<br>(kW) |
|--|------------------------|----------------------------------|----------------------------------|
| Button Up                                  | (2,700)                | (2.7)                            | (1.0)                            |
| Tune Up                                    | (2,200)                | (2.2)                            | (1.0)                            |
| Geothermal                                 | (6,000)                | (3.5)                            | (1.5)                            |
| ETS  | 9300*                  | (2.1)                            | 0.0                              |
| Efficient Heat Pump In New<br>Construction | (925)                  | 2.5**                            | (1.0)                            |
| Touchstone Energy Home                     | (5,100)                | (2.4)                            | (1.4)                            |
| Efficient Water Heater                     | 700**                  | 0.2**                            | 0.1**                            |

\* Off-peak

\*\* Impacts are positive due to customers who normally would have chosen natural gas

Annual budgets are a function of administrative cost and incentive payments. The table below reports EKPC administrative costs, and typical administrative costs and incentive payments by EKPC member distribution cooperatives.

|   | EKPC Administrative Per Unit Cost | Distribution Cooperative Administrative Per Unit Cost | Incentive Payment                         |
|---|-----------------------------------|---|---|
| Button Up                               | \$32                              | \$163   | Up to \$400                               |
| Tune Up                                 | \$60                              | \$216   | (\$50)*                                   |
| Geothermal                              | \$17                              | \$254   | \$300                                     |
| ETS                                     | \$57                              | \$304   | \$50 per kW Installed                     |
| Efficient Heat Pump In New Construction | \$13                              | \$182   | \$300                                     |
| Touchstone Energy Home                  | \$13                              | \$162   | Varies Widely By Distribution Cooperative |
| Efficient Water Heater                  | \$8                               | \$61  | \$100                                     |

\*Homeowner pays \$50 for the service

For a more in depth discussion of EKPC and member distribution cooperative DSM programs, please see Administrative Case No. 2003-00051, Appendix II.

**Request 18.** Provide your utility’s definition of “transmission” and “distribution.”

**Response 18.** Big Sandy RECC only owns and operates distribution facilities. This would include poles and wires from the substation to service transformers, as well as, service drops to each member including the meter on the member's electrical entrance. Other equipment would include regulators and capacitors.

**Request 19.** Identify all utilities with which your utility is interconnected and the transmission capacity at all points of interconnection.

**Response 19.** Big Sandy RECC only has connections with EKPC.

**Request 20.** Provide the peak hourly MW transfers into and out of each interconnection for each month of the last 5 years. Provide the date and time of each peak.

**Response 20.** Not Applicable

**Request 26.** Provide the yearly System Average Interruption Duration Index ("SAIDI") and the System Average Interruption Frequency Index ("SAIFI"), excluding major outages, by feeder for each distribution substation on your system for the last 5 years.

**Response 26.** Big Sandy does not have SAIDI information available by distribution feeder. Shown below is information on a system-wide basis.

|      | <u>SAIDI</u> | <u>SAIFI</u>  |
|------|--------------|---------------|
| 2000 | 1.9 hrs      | Not Available |
| 2001 | 1.6 hrs      | Not Available |
| 2002 | 14.2 hrs     | Not Available |
| 2003 | 1.1 hrs      | Not Available |
| 2004 | 13.0 hrs     | .06 hrs       |

Big Sandy RECC just started tracking SAIFI data in 2004.

**Request 27.** Provide the yearly SAIDI and SAIFI, including major outages, by feeder for each distribution substation on your system for the last 5 years. Explain how you define major outages.

**Response 27.** The response is the same as shown in Item 26. Big Sandy RECC has not experienced any major outages since tracking SAIDI and SAIFI data. Big Sandy RECC defines major outages as ten percent of our consumers without electric service for 24 hours.

**Request 28.** What is an acceptable value for SAIDI and SAIFI? Explain how it was derived.

**Response 28.** Big Sandy has not established acceptable values for SAIDI and SAIFI.

**Request 29.** Provide the yearly Customer Average Interruption Duration Index (“CAIDI”) and the Customer Average Interruption Frequency Index (“CAIFI”), including and excluding major outages, on your system for the last five years. What is an acceptable value for CAIDI and CAIFI? Explain how it was derived.

**Response 29.** Big Sandy RECC just began tracking CAIDI data in 2004. The CAIDI value for 2004 was 213.5 hours. CAIFI information is not available. Big Sandy has not established acceptable values for CAIDI and CAIFI.

**Request 30.** Identify and describe all reportable distribution outages from January 1, 2003 until the present date. Categorize the causes and provide the frequency of occurrence for each cause category.

**Response 30.** Big Sandy RECC has not experienced any reportable outages from January 1, 2003 until present date.

**Request 31.** Does your utility have a distribution and/or transmission reliability improvement program?

- a. How does your utility measure reliability?
- b. How is the program monitored?
- c. What are the results of the system?
- d. How are proposed improvements for reliability approved and implemented?

**Response 31.** Big Sandy RECC incorporates distribution improvement plans into our work plan. Reliability is gauged by frequency of outages on specific distribution

feeders. Conductor replacement and Right-of-Way maintenance are the major components of our improvement program.

- a. The number of outages on a given distribution feeder in conjunction with information gathered from field personnel is used to analyze the age, deterioration of conductor, and other factors that contribute to the need for replacement or improvement of such feeder.
- b. Big Sandy RECC staff, in conjunction with our engineering consultant, monitors this program. ROW is monitored by crews and management.
- c. This system has allowed Big Sandy RECC to identify trouble prone feeders and address needed changes and improvements. Also, it has enabled Big Sandy to cut trouble areas of our ROW to improve reliability and reduce line loss.
- d. Big Sandy RECC management approves these proposed improvements. Consulting engineers are utilized when needed.

**Request 32.** Provide a summary description of your utility's:

- a. Right-of-way management program. Provide the budget for the last 5 years.
- b. Vegetation management program. Provide the budget for the last 5 years.
- c. Transmission and distribution inspection program. Provide the budget for the last 5 years.

**Response 32.**

Right-of-Way Management Program

Big Sandy RECC has one 4-man right-of-way crew that is utilized for cutting new right-of-ways, hot spots, trimming of yard trees, and other right-of-way work as needed.

Big Sandy RECC has 3 contract right-of-way crews cutting with a target of 140 miles of cutting per year. Big Sandy RECC's goal is maintaining a 35-foot right-of-way on a 7-year cycle.

|             |           |
|-------------|-----------|
| 2000 Budget | \$249,000 |
| 2001 Budget | \$236,000 |
| 2002 Budget | \$269,000 |
| 2003 Budget | \$324,000 |
| 2004 Budget | \$497,000 |

#### Vegetation Management Program

Big Sandy RECC uses a contractor for herbicide application with plans to increasingly expand this type of vegetation control in the future due to its cost savings and the uncertainty of future labor prices and availability.

In 2004 Big Sandy RECC applied vegetation control to approximately 50 miles of its distribution lines.

|             |          |
|-------------|----------|
| 2000 Budget | \$ 0     |
| 2001 Budget | \$ 0     |
| 2002 Budget | \$ 0     |
| 2003 Budget | \$35,000 |
| 2004 Budget | \$65,000 |

#### Distribution Inspection Program

Big Sandy RECC has dedicated servicemen for line inspection patrol. This inspection patrol includes a visual inspection of all distribution feeders throughout our system.

|             |          |
|-------------|----------|
| 2000 Budget | \$57,000 |
| 2001 Budget | \$59,000 |
| 2002 Budget | \$68,000 |
| 2003 Budget | \$65,000 |
| 2004 Budget | \$62,000 |

**Request 33.** Explain the criteria your utility uses to determine if pole or conductor replacement is necessary. Provide costs/budgets for transmission and distribution facilities replacement for the years 2000 through 2025.

**Response 33.** Conductor replacement is evaluated on physical inspection. Sounding, and boring for ground decay and visual inspections above ground, determine Pole replacements.

Big Sandy RECC's current work plan is approximately \$9 million for the years 2001-2005. Big Sandy RECC anticipated spending between 2 and 3 million dollars annually on its system in the future.